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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/624,120	07/21/2003	Chi-Yin Lee	2003P05220US	6118
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Siemens Corporation Intellectual Property Department 170 Wood Avenue South Iselin, NJ 08830				
EXAMINER				
CHENG, JACQUELINE				
ART UNIT		PAPER NUMBER		
3768				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/624,120

**Applicant(s)**

LEE ET AL.

**Examiner**

JACQUELINE CHENG

**Art Unit**

3768

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8, 10-12, 19, 21-23 and 25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8, 10-12, 19, 21-23 and 25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/888)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments with respect to claim 1-8, 10-12, 19, 22, 23, and 25 have been considered but are moot in view of the new ground(s) of rejection.
2. Applicant's arguments with respect to claim 21 have been fully considered but they are not persuasive. The applicant argues that neither Mo (US 6,577,967 B2), Bakircioglu (US 6,733,454 B1), nor Pan (US 6,322,509 B1) disclose the added limitation of estimating the chance as a numerical optimization. The examiner respectfully disagrees with the applicant. In order to automatic feedback there is inherently includes some type of numerical optimization as to work digitally with a computer processing and determining a optimal parameter there has to be some kind of numerical comparison. In Mo the numerical optimization is the comparison of the scale factor (a percentage, or a number) based on signal edge closest to the baseline, in Bakircioglu the numerical optimization is applying specific functions or formulas (which is numerical), or using thresholds (comparing the change with a specific number as the threshold), and in Pan uses image data taken from spectral Doppler sequences, and binarizes them (transformed into a number format to be compared and calculated with) to determine the optimal parameters. Therefore the rejection on claim 21 is maintained from the office action dated July 27, 2007.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(c) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. **Claims 1, 2, 5-8, 10-12, 19, 21-23 and 25** are rejected under 35 U.S.C. 102(a) as being anticipated by Christopher (US 2003/0045797 A1). Christopher teaches a spectral Doppler imaging system wherein the parameters are automatically optimized. The system can be set to periodically automatically optimize one or a plurality of spectral Doppler parameters such as the pulse repetition rate, baseline, filter setting, angle of scan line, and the gain. The periodicity can be with the passage of time or in response to an operational event like a heart cycle (paragraph 0016, 0031). Therefore the system fires a first sequence of spectral Doppler pulses and then the system automatically optimizes the pulse in response to a goal value, then the system fires this second sequence of spectral Doppler pulses (which would be different from the first sequence) and in response to a second goal value the parameters would be optimized by setting parameters which would equate to a third pulse sequence. The constant optimization and making sure the parameters are correct also corresponds to the zero or more iterations based on the preceding goal values. Since the system is optimizing as each spectral pulse is fired, the optimization is based upon all the previous changes in parameters based on the previous goal values and computations.

5. **Claim 21** is rejected under 35 U.S.C. 102(b) as being anticipated by Pan (US 6,322,509 B1). Pan discloses a method and apparatus for automatically initializing and adjusting the Doppler gate position and size settings (abstract). A sample gate cursor is fired while being moved by the system operator (fired at least a first and second sequence as to get information while the cursor is being moved it must be fired at least at the start and at the end of being moved) (col. 7 line 19-26). The Doppler parameter such as the gate position and angle value is automatically set as a function of the change of the Doppler parameter as a function of the best vessel segment. The goal values for the best vessel segment can be chosen on any reasonable characteristic depending upon the desired parameters for the image such as vessel diameter, or most uniform diameter (col. 7 line 55-col. 8 line 23).
6. **Claim 21** is rejected under 35 U.S.C. 102(e) as being anticipated by Mo'967 (US 6,577,967 B2). Mo'967 discloses an ultrasound system comprising a Doppler image display unit for displaying a Doppler image with adjustable Doppler parameters (of polarity and position along the frequency axis). In Mo'967 A plurality of sequences of Doppler pulses (the results of are the various memory signals) are fired and depending on the analyzed values the polarity, position, or pulse repetition frequency can be automatically adjusted, therefore each of the future pulses fired (a first, second, and third sequence) has a more optimized setting.
7. **Claim 21** is rejected under 35 U.S.C. 102(e) as being anticipated by Bakircioglu (US 6,733,454 B1). Bakircioglu discloses a method and system for automatic optimization of spectral Doppler ultrasound imaging. Imaging parameters such as gate position, Doppler gain and filter

settings are automatically set after firing sets of sequences of spectral Doppler pulses over a heart period with predetermined imaging parameters (abstract, col. 3 line 5-31, col. 5 line 4-15, col. 7 line 7-13).

8. The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. **Claim 3 and 4** are rejected under 35 U.S.C. 103(a) as being unpatentable over Christopher. Christopher discloses most of what is claimed above except for explicitly disclosing setting the gate position and the Doppler gain. It would be obvious to use gate position and/or Doppler gain as one of the parameters that are automatically set as Christopher discloses that other acquisition parameters may be automatically optimized and it is well known in the art to automatically adjust gate positions (paragraph 0031).

***Conclusion***

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to JACQUELINE CHENG whose telephone number is (571)272-5596. The examiner can normally be reached on M-F 10:00-6:30.
12. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on 571-272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.
13. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jacqueline Cheng/  
Examiner, Art Unit 3768

/Brian L Casler/  
Supervisory Patent Examiner, Art Unit 3737